

LAWSON TAIT'S

PERINEAL OPERATIONS.

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# LAWSON TAIT'S PERINEAL OPERATIONS,

AND

## An Essay on CURETTAGE OF THE UTERUS.

BY

W. J. STEWART MCKAY, M.B., M.CH., B.Sc.,

SURGEON TO THE LEWISHAM HOSPITAL FOR WOMEN AND CHILDREN ;

SURGEON TO THE BENEVOLENT ASYLUM MATERNITY HOSPITAL, SYDNEY ;

FELLOW, BRITISH GYNÆCOLOGICAL SOCIETY, AND OBSTETRICAL SOCIETY OF LONDON.



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AMICO OPTIMO, PRÆCEPTORI SOLLERTISSIMO,

LAWSON TAIT.





## P R E F A C E.

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I HAVE complied with the request of my friend Dr. Stewart McKay, to read the following pages and add a few notes, with much pleasure, because his description of my perineum operations are the first which I have seen full enough to be of any use to those desirous of doing these operations as I wish them to be done. This is probably to be attributed to a want of fulness or clearness in my own descriptions; a fault due to the fact that writing is to me an intolerable labour, and my attention has for years been closely occupied by matters which seemed to me more important. Besides, those who had seen me do the operations comprehended them so readily, carried their instruction away with them and reproduced it so perfectly, that the difficulty of understanding descriptions of them seemed to me only absurd.

Yet it must have been real, for I find my operations mixed up with those of other people in confusion most inextricable. I have seen a description of something called 'The Tait-Sänger Operation' for which I desire to disclaim all responsibility, as with all similar mixtures. The difficulty of understanding alike my own description and some dozen others published in recent years appears at its height when Dr. Howard Kelly, in his article in Dr. Matthew Mann's 'System of Gynæcology,' considerably

refrains from any allusion to the operations. Yet when seen and understood they are the simplest, neatest and most effective operations in surgery, have a fatality of certainly not more than one in five hundred, and their failures, in my own hands, are not over two in some thousands. Those failures were due to previous denudations.

I think Dr. McKay's ingenious diagrams and carefully detailed description will bring the understanding of these simple proceedings within the reach of all.

BIRMINGHAM,

*July 24, 1897.*

LAWSON TAIT.

## INTRODUCTION.

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LAWSON TAIT'S operations for restoring the ruptured perineum have become well and favourably known in many lands. The details have been set forth by Tait, Barnes, and others in elaborate communications, yet no diagrams have been published which clearly show the successive steps of the operations. Whilst assistant to Mr. Tait some years ago, I drew a number of figures illustrating his operations, and these received his corrections and approval. The diagrams contained in the following pages are similar to those drawn for him.

I have seen the operations here described performed by many surgeons, yet I have never seen them executed in the way that Mr. Tait intended them to be done. The simplicity of the operations has evidently been the great difficulty, for it cannot be realized that Mr. Tait does these operations with a few snips of the scissors, and that he takes but five minutes to execute either.

Operators persist in elaborating each stage, and turn the procedure from a flap-splitting one into a denuding colporrhaphy, thereby defeating the essential point of each operation, whose virtues are that they restore the parts to their former anatomical condition, and if they fail the patient is in no worse condition than before, because no tissue has been removed.

I have often failed to make the operations perfectly clear by means of diagrams, but the following simple plan has generally succeeded : Take a large piece of dough or putty, and make two invaginations into it ; the larger will represent the vagina, the smaller the anus. Now mark out the lines of incision round the edges of these invaginations, and proceed to reflect the flaps as shown in the diagrams ; the supposed raw surface then formed may be marked with red ink, and the sutures may be introduced and tied.

With regard to curettage of the uterus, I have been tempted to write an essay on the subject for the following reasons : Curettage, being the operation that minor gynæcology has been fostered on up till recent years, appears to be the one operation that every man in the profession thinks that he is capable of performing. But since the indications, the technique, and the dangers are often known only in the most superficial way, and from the fact that tubal disease is often not recognised, or, if recognised, is not regarded as a contra-indication to curettage, therefore has the curette come to be a most potent factor in the etiology of grave tubal lesions.

The great injury that may result from an improper use of the curette, when tubal disease is present, was first strongly impressed upon me by Tait, and afterwards by August Martin, of Berlin ; and I later on had abundant proof of their assertions whilst acting as House-Surgeon at the Soho Hospital, London.

My second thought was that this essay might be of some assistance to medical men living in the country districts of Australia, where they are frequently called upon to do a curettage at very short notice. The proper knowledge of the use of the curette may then save a patient from a

speedy death from hæmorrhage, from a lingering death from septicæmia, or from the lifelong sufferings of tubal disease.

Books give outlines for an operation, but to those unaccustomed to operate, the few hints picked up from others who are continually performing operations may be of more use than the formal directions of the text-book.

With regard to the opinions expressed, it will be noted that I have quoted the experiences of others freely, but have usually given the preference to such men as Tait, A. Martin, of Berlin, and Tarnier, since I have had the privilege of working under these men for various periods, and have thus been able to ascertain from them their opinions about particular points which their writings had not sufficiently elucidated. Added to this, Tait and Martin may be looked upon as the greatest living authorities on gynæcology, while Tarnier shares with Winckel a similar position in the obstetrical world.

Lastly, instead of figuring the various instruments, I have, when necessary, referred to Arnold's Catalogue (1895), a copy of which, I believe, has been supplied to most of the medical men in the colonies.





# TAIT'S PERINEORRHAPHY.

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## PREPARATION OF THE PATIENT.

THE bowels should be well opened the day before the operation, and on the morning of the operation they should be thoroughly washed out by an enema. This is most essential.

The patient, having been drawn to the end of the table, is placed in the lithotomy position, the crutch applied, and the hairs may be shaved from the field of operation, the vagina and vulva well cleansed with soap and water.

## INSTRUMENTS REQUIRED.

A pair of angular scissors, the lower blade having a sharp extremity.

A pair of dissecting forceps and eight pressure forceps.

A handled needle, and sutures always of silkworm gut.

A crutch, swabs and irrigator.

Boracic powder, lint, and a T-bandage.

The handled needle should be as small as possible at its piercing end, should have a gentle wide curve and a strong neck.

## DESCRIPTION OF THE V OPERATION FOR INCOMPLETE RUPTURE.

This operation is known as the V operation in contradistinction to the other, which is called the H, these letters representing roughly the shape of the incisions made

in performing the operations. Some cases of extension, but without complete laceration, require a combination of both operations, as illustrated in Figs. 9, 10, 11.

### First Step : The Incision.

FIG. 1.—The sharp point of the lower blade of the angular scissors is pushed into the tissues at M P, which is the anterior extremity of what remains of the median raphe of the perineum, P. The blade sinks for three-quarters of an inch into the tissue, and it is well to insert the index-finger of the left hand into the rectum, so as to steady the parts and prevent the blade entering the bowel. A cut is now made upwards along the junction of the skin, S, and the vaginal mucous membrane, P V F, to the point R, situated internal to the distal extremity of the right labium minus. A similar cut is made on the left side to L. A preliminary and vertical snip in the original direction of the raphe enables the operator to make a regular and symmetrical start for the two sides.

### Second Step : The Reflection of the Vaginal Wall.

FIG. 4.—The incision having been made, we now find that the mucous membrane of the posterior wall, P V F, being now liberated, retracts, and we thus come to have formed a raw V-shaped bleeding surface, R S. In order that we may increase this surface, it is necessary to gently snip round the edge of P V F, and by so doing we really make a kind of flap of mucous membrane, P V F. The more we snip, the more this flap retracts, being liberated from the underlying tissues, and the larger becomes our V-shaped raw surface. Mr. Tait most emphatically says that this surface, R S, should *not* be a large one, and he seldom does more than make the primary incision. If we dissect the flap up too much, we are only weakening the



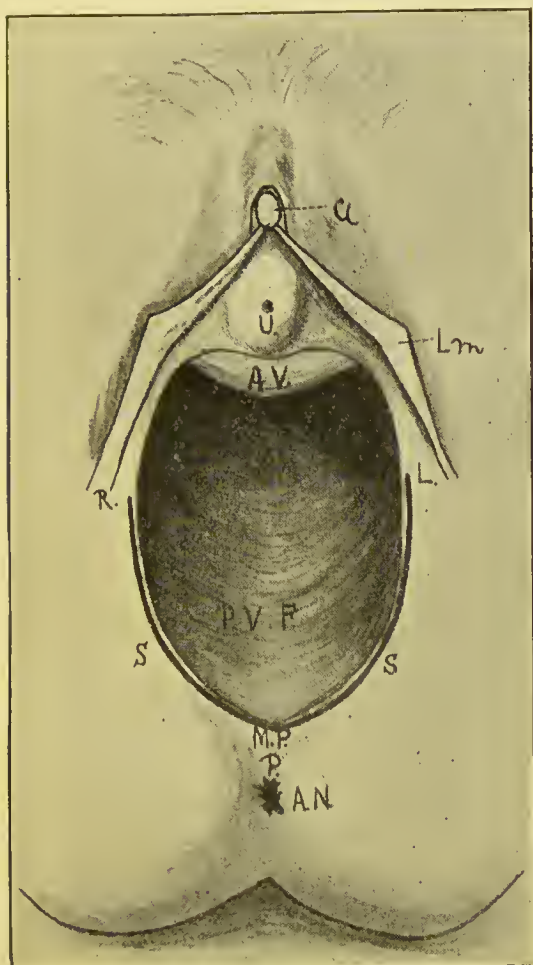


FIG. 1.

FIG. 1.—This figure represents an incompletely-ruptured perineum; *i.e.*, the rupture has not extended into the rectum. P is the remains of the perineum; M P, the anterior extremity of the median raphe; R and L, right and left sides, the letters being placed internal to the distal ends of the labia minora, Lm; Cl, the clitoris. The dark line running from M P to R and L is seen to be lying at the junction of S, the skin, and the mucous membrane of the posterior vaginal wall, P V F, and this dark line represents the line of incision. A V is the anterior vaginal wall; U, the meatus urinarius; An, the anus.

FIG. 2 represents a sagittal section of the parts about the vulva in a case when the perineum, P, is not ruptured.

FIG. 3 shows the state of the parts supposing we were to make a sagittal section of Fig. 1. The dotted triangular portion, X, is the part that is restored by the operation.

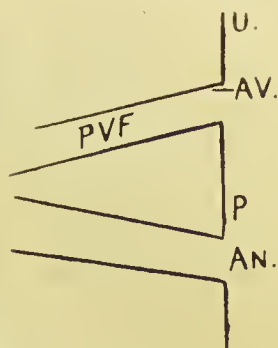


FIG. 2.

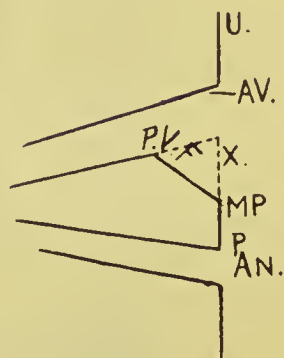


FIG. 3.

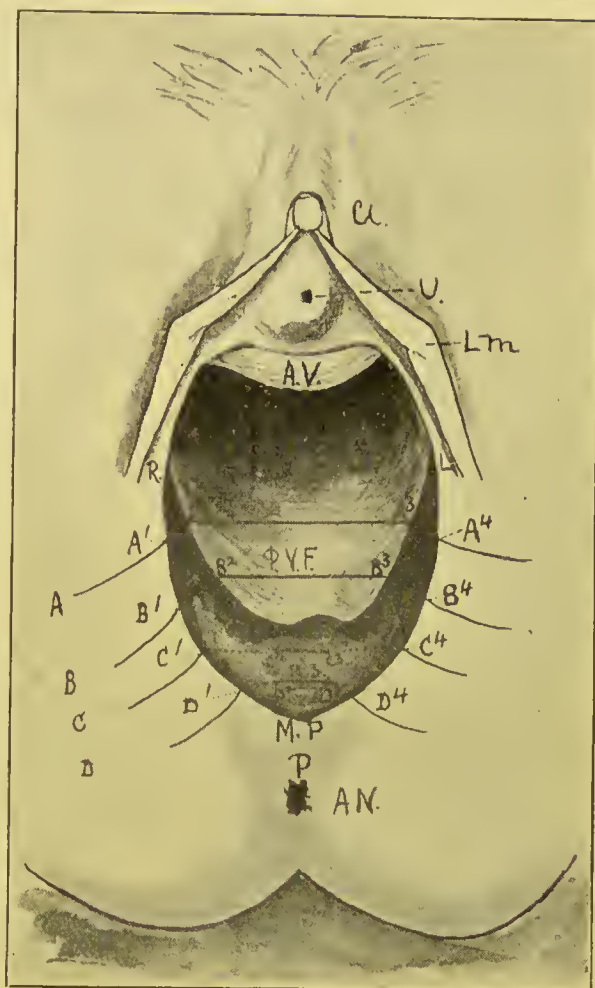


FIG. 4.

FIG. 4.—The V-shaped incision that was marked out in Fig. 1 has now been made, and as the result the posterior vaginal wall, P V F, has retracted, and a raw surface, R S, remains. The raw surface is increased by snipping under the flap of mucous membrane, P V F, allowing it to retract still more.

The four sutures which are usually necessary are shown in position.

parts and defeating the primary idea of the operation, which is not a 'denuding' one, but a 'flap-splitting' one; too extensive an incision completely bisects the perineal mass, which is not advisable.

### Third Step : Insertion of the Sutures.

FIG. 4A.—Taking the handled needle, we bury the point at the spot marked  $D^4$ , which is on the left of the patient, and is JUST WITHIN the skin edge. Keeping the left index-finger in the rectum, we push the point of the needle well into the tissues below the raw surface, R S, and then cause

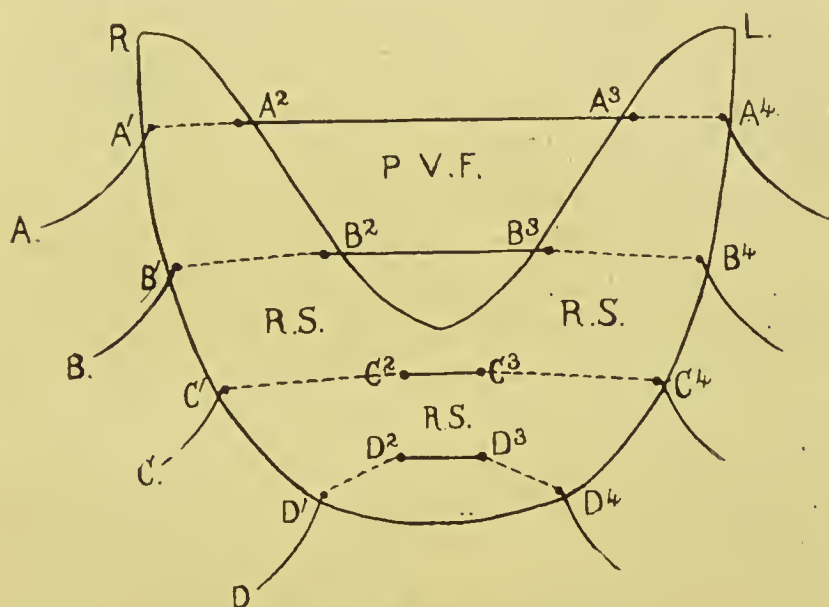


FIG. 4A.

FIG. 4A shows the manner of inserting the sutures, as described in the text. Note that the sutures A and B are inserted quite differently to C and D.

it to emerge at  $D^3$ , near to the median line. When it has emerged, we carry the point over the median line and bury it at  $D^2$ , and, pushing it deeply below the raw surface, we cause it to emerge at  $D^1$ , just inside the skin edge. The eye is now threaded and the needle withdrawn, carrying with it the suture  $D D^1 D^2 D^3 D^4$ .

We may, however, adopt another manœuvre; that is, after causing the needle to emerge at  $D^3$ , we may thread and withdraw it, carrying with it the suture. Now un-

thread the needle, and insert it at  $D^1$  and bring the eye out at  $D^2$ , then thread and withdraw.

Suture C is inserted in the same manner as suture D.

Mr. Tait always inserts the needle *inside* the skin edge, NOT THROUGH THE SKIN, so that when the sutures are tied the skin edges will be turned out and a good median raphe will be the result.

Sutures B and A are inserted differently to C and D. Insert the needle at  $B^4$ , and bring out the point at  $B^3$ , just *external* to the edge of the posterior vaginal flap, P V F; then thread and withdraw. Now insert the needle at  $B^1$ , and bring out the eye at  $B^2$ . The end of the suture that has been left hanging out at  $B^3$  is now carried across *in front of the posterior vaginal flap, P V F*, and the needle is threaded at  $B^2$  and withdrawn.

It is well, after having inserted each stitch, to seize each end with a pair of catch forceps; this prevents the sutures being accidentally pulled out, and by allowing the forceps to hang down over the anal region they keep the sutures out of the way.

#### Fourth Step: Tying the Sutures.

FIGS. 5, 6, 7.—First seize the six catch forceps attached to the extremities of sutures A, B, C, and hand them to an assistant, who holds them up over the mons. Now irrigate the raw surface with a hot solution to cleanse the parts and to stop any oozing. If any vessels require tying, these should be attended to.\*

Seizing the two catch forceps attached to the extremities of suture D, we pull gently on each, the assistant on either side pressing each buttock in towards the median line; by

\* I use no cleansing but a sponge and plain water, and always have found the proper fastening of the sutures sufficient to arrest surface bleeding.—L. T.

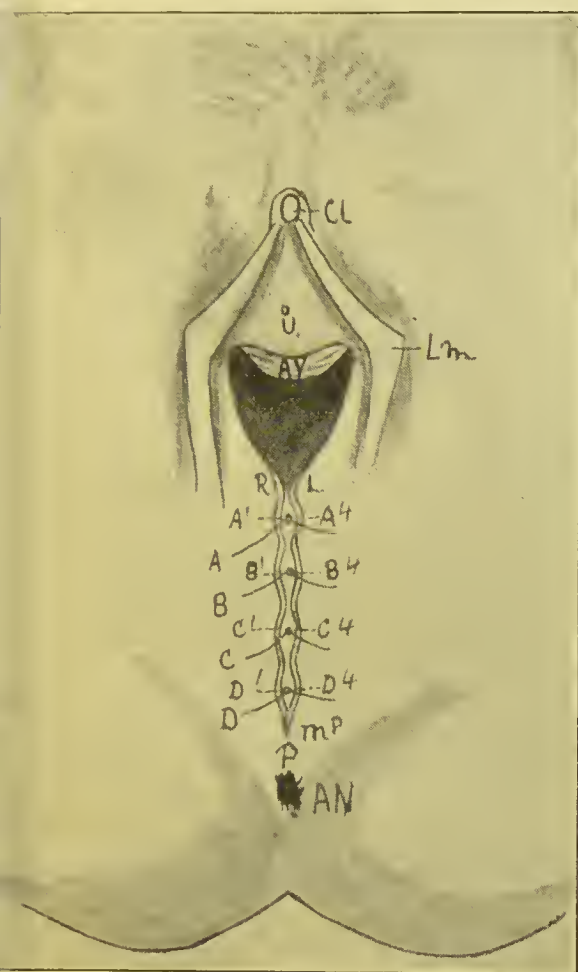


FIG. 5.

FIG. 5.—The lowest stitch, D, shown in Figs. 3 and 4A has now been tied. The figure shows that the skin edges are turned out because the suture has been inserted *inside* the skin edge, not through *the* skin itself.

FIG. 6.—D and C have both been tied; B and A remain to be tied. In order to accomplish this, it is necessary to bring the surface A<sup>1</sup> A<sup>2</sup> B<sup>2</sup> B<sup>1</sup> into apposition with the surface A<sup>4</sup> A<sup>3</sup> B<sup>3</sup> B<sup>4</sup> in the median line, *in front of* the posterior vaginal wall, P V F.

FIG. 7.—This figure shows the position of the parts when all the sutures have been tied.

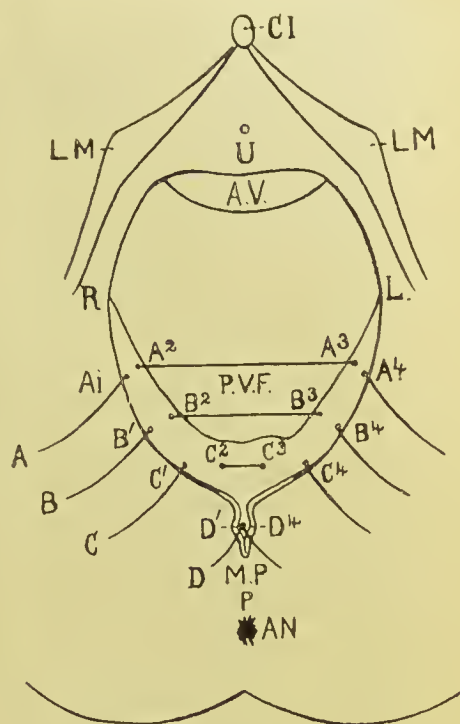


FIG. 6

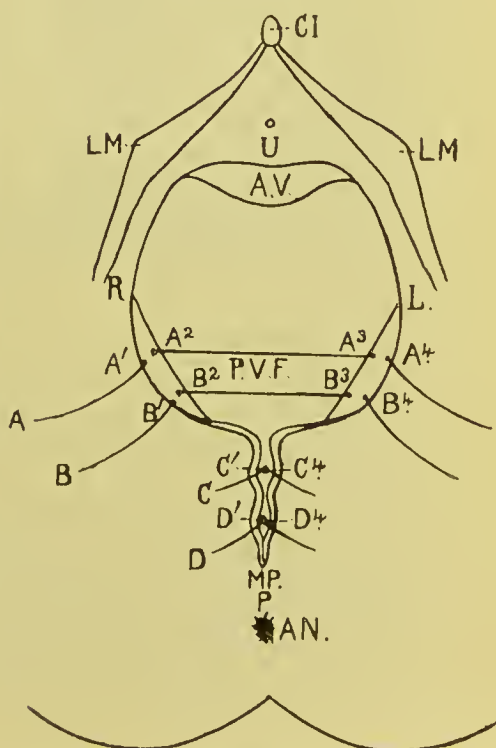


FIG. 7.



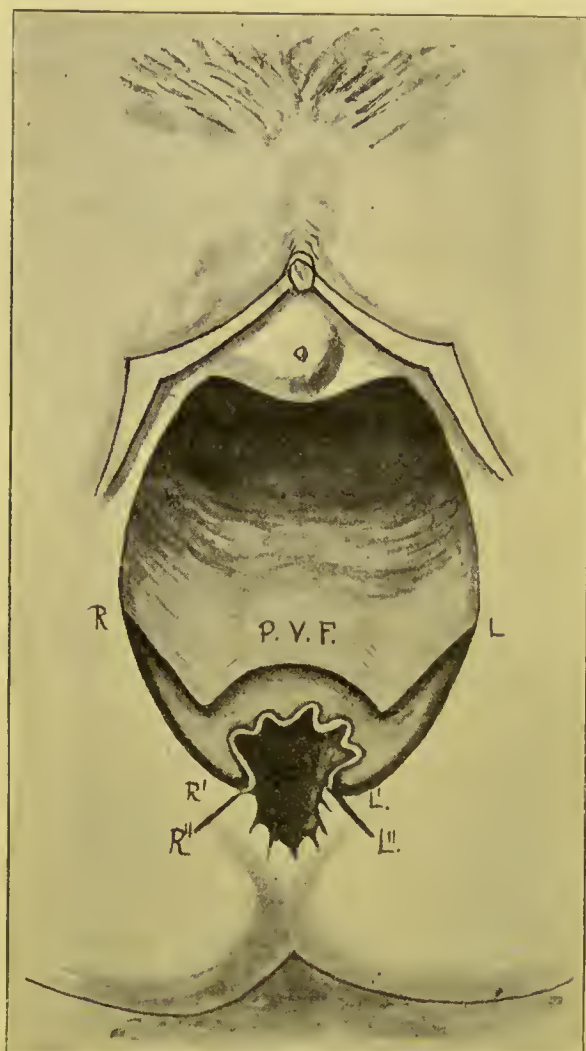


FIG. 8.

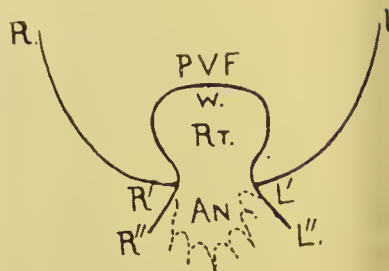


FIG. 9.

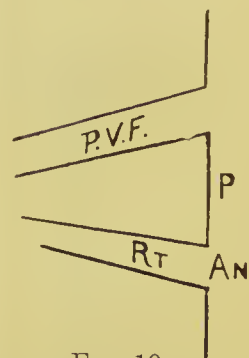


FIG. 10.

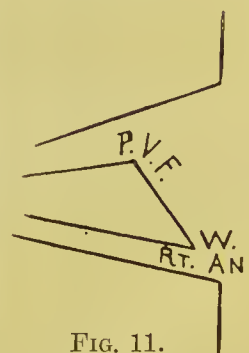


FIG. 11.

FIGS. 8, 9.—These figures represent the state of things when the perineum has been completely ruptured into the rectum, and the rupture has extended some little distance up the rectum. The junction of the posterior vaginal mucous membrane, P V F, with the rectal mucous membrane is represented by a white line. The various lines of incision are shown in this figure and in Fig. 9. The point of the scissors is inserted at L', and an incision is made round the concave white line W to the point R', and from R' to R, then from L' to L, then from L' to L'', and from R' to R''.

FIG. 10 represents the parts when the perineum is normal.

FIG. 11 represents a sagittal section of Fig. 8.

this means the lower sides of the V are brought into apposition. The suture is then tied. (Fig. 5.)

Suture C is tied in the same way. (Fig. 6.)

Sutures A and B now remain. The assistants press still more strongly on the sides R and L, so as to bring the surface  $A^1 A^2 B^2 B^1$  (Fig. 6) into apposition with  $A^4 A^3 B^3 B^4$  in the median line *in front of* P V F.

Fig. 7 shows the appearance of the parts when all the sutures have been tied.

Readers of this operation frequently ask, What becomes of the flap P V F? The answer is: If the incision is made properly, no real flap will be formed, but if too much dissection has been practised in order to get a large raw surface, then a flap is formed, and this adheres to the anterior face of the newly-restored perineum.

## DESCRIPTION OF THE H OPERATION FOR COMPLETE RUPTURE OF THE PERINEUM.

[For the proper understanding of this operation, I lay great stress on the peculiar mechanism of the original rent and its method of healing. It is the only known wound whose cicatrix is inevitably and constantly at right angles to the direction of the wound from which it results. This is due to the continuous dragging of the divided sphincter. It should be noticed that the tear of the perineum is always parallel with, if not actually in the line of, the raphe, whilst the cicatrix is parallel with the septum, the two halves of the perineum being dragged apart and buried in the divided skin and mucous membrane as deeply as possible, carrying with them the separated ends of the sphincter ring. For proper repair their separated ends must be exposed, and therefore the laterals of the incision must be deep.

Before making the incision, the cicatrix must be carefully

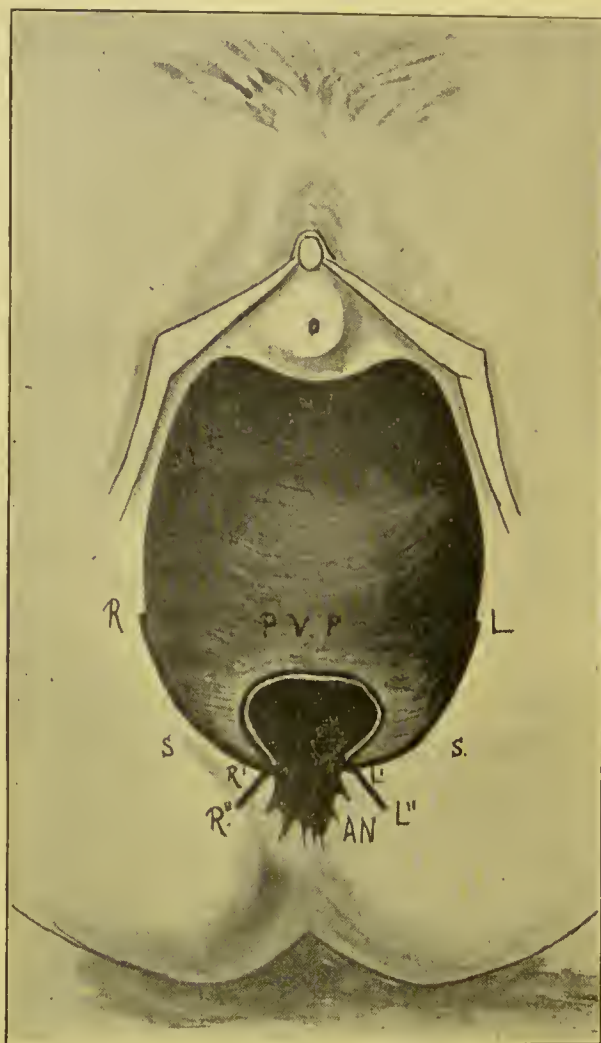


FIG. 12.

FIG. 12 shows how the posterior vaginal mucous membrane, P V F, retracts when the incisions are made from L' to R', from R' to R, and from L' to L. The incisions from R' to R'', and from L' to L'', have not yet been made.

and completely stretched by the thumbs of the operator being firmly fixed outside the anal margins and separated until the clear white line of the cicatrix starts into view. This will be found to consist of a horizontal line along the edge of the rupture, and two shorter vertical lines, one at



each end of the horizontal line, making a very wide H incision like this :



The points where the transverse line cuts the vertical lines indicate the burial-places of the separated ends of the sphincter, and here the scissors must enter deeply at one end and travel carefully along the horizontal white line till they reach the other point of juncture; then an upward and downward snip completes the incision. The rest, in Dr. McKay's words, makes the process quite plain.—L. T.]

### First Step: The Incisions.

FIGS. 8, 9.—The sharp point of the lower blade of the angular scissors is pushed into the tissues at L'; the blade is made to sink for half an inch into the tissues, and the left index-finger is placed in the rectum beneath the 'white line,' *i.e.*, beneath the junction of the vaginal with the rectal mucous membrane. A cut is now made along the white line from L' to R', then from R' to R, *i.e.*, along the junction of the skin, S, and the vaginal mucous membrane, P V F. The next incision is made from L' to L, then from L' to L'', and then from R' to R''.

### Second Step: The Reflection of the Vaginal Wall.

FIGS. 12, 13.—The incisions from L' to R', from R' to R, and from L' to L, having been made, we now find that the mucous membrane of the posterior vaginal wall, P V F, being now liberated, retracts, and we thus come to have formed a raw W-shaped surface. In order that we may increase the surface, it is necessary to gently snip round the edge of P V F, and by so doing we make a real flap of mucous membrane, P V F, from the posterior vaginal wall.

It is necessary to snip under this until we have a fairly large raw surface, shaped like the letter H.

In order that we may gain a still larger raw surface, we now complete our incision from R' to R''; Fig. 13 shows the result of the incisions.

### Third Step : Insertion of the Sutures.

FIGS. 13, 14. —Before inserting the sutures, it is necessary to insert two hooks into the posterior vaginal flap, P V F, and pull it up out of the field of operation. Two hooks are likewise inserted into the free border of the rectal mucous membrane, and by pulling these downwards we have formed the anal flap (Fig. 14, A F). Taking a handled needle, we bury the point at the spot marked D<sup>4</sup>, Fig. 14, which is on the left of the patient, and is just inside the skin edge. Keeping the left index-finger in the rectum, we push the point of the needle well into the tissues below the raw surface, R S, and then cause it to emerge at D<sup>3</sup>, near to the median line. It is then threaded and withdrawn. Now introduce it at D<sup>1</sup>, burying it as before, cause it to emerge at D<sup>2</sup>, thread it with the suture at D<sup>3</sup>, and withdraw the needle. All the other sutures are inserted in a similar manner.

### Fourth Step : Tying the Sutures.

FIGS. 15, 16. —First seize the six catch forceps attached to the extremities of sutures A, B, C, and hand them to an assistant, who holds them up over the mons. Now irrigate the raw surface with a hot solution to cleanse the parts and to stop any oozing. If any vessels require tying, these should be attended to. Seizing the two catch forceps attached to the extremities of suture D, we pull gently on each, the assistant on either side pressing each buttock

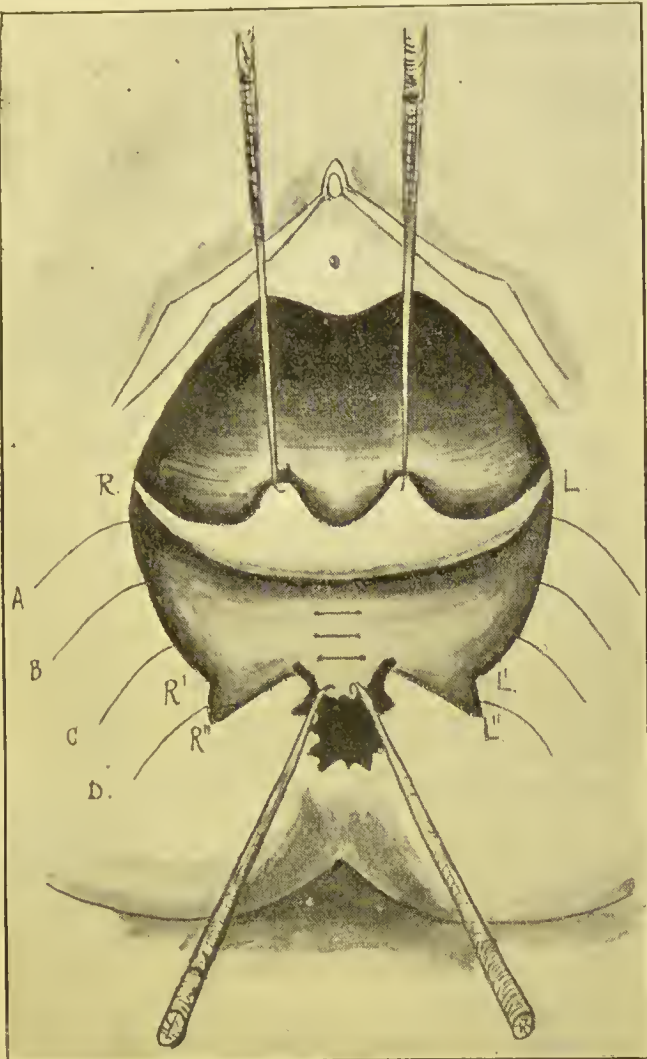


FIG. 13.

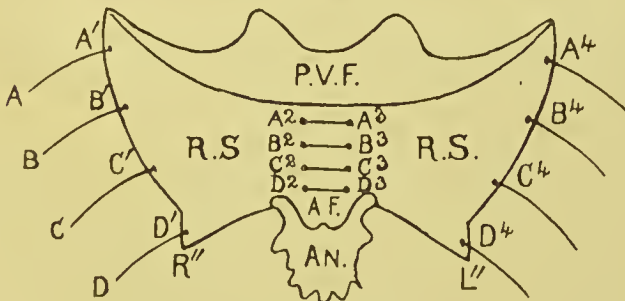


FIG. 14.

FIG. 13 shows the posterior vaginal flap dissected up and held by two hooks. The incisions from L' to L'', and from R' to R'', have now been completed, and the parts have gaped outwards. The figure also shows how the rectal flap is formed by splitting the free edge of the tissue that borders on the rectal mucous membrane.

FIG. 14 shows how the sutures are inserted (*vide text*).

well in towards the median line, while one of the assistants makes gentle traction on the anal flap, A F.

Each suture is tied in turn, and when everything is finished Fig. 16 shows the state of the parts. The posterior vaginal mucous membrane in this operation is formed, by dissection, into a flap, and when the hooks are taken off after the operation this flap falls against the anterior surface of the newly-made perineum, to which it adheres and which it helps to strengthen. The anal flap, A F, becomes smaller each day after the operation, and, by adhering, also becomes an integral part of the newly-formed perineum.

### AFTER-TREATMENT.

After completing the operation, the parts are dusted with iodoform and boracic acid powder; some dressings and a T-bandage are applied. [I do not apply any dressings, but direct the nurse to keep the parts quite dry.—L. T.]

The patient's legs should be tied together until she has regained consciousness, else she may struggle and put great tension on the sutures.

The bowels should be washed out every day by a simple enema, and no hard fæces should be allowed to accumulate. We generally syringe the external genitals with Condyl's fluid twice a day; and if any bleeding takes place from the vaginal flap, the vagina may be syringed.

The only complications which arise are occasional stitch abscess, and very exceptionally some slight hæmorrhage from the vaginal flap. We have had the latter complication once, and we know that it has occurred to others. Hot injections or plugging the vagina with iodoform gauze will be all that will be necessary in such a case.

Should a stitch abscess form, it is generally due to the suture having been passed through the rectal mucous



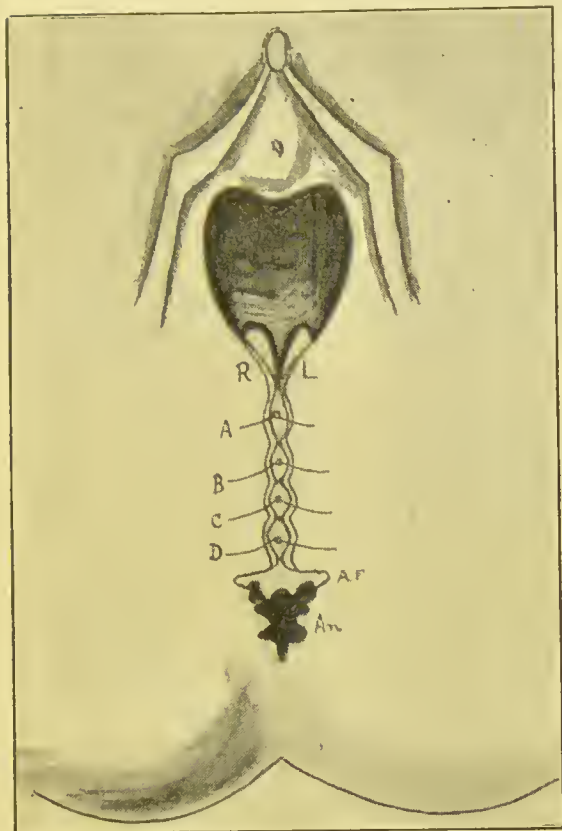


FIG. 15.

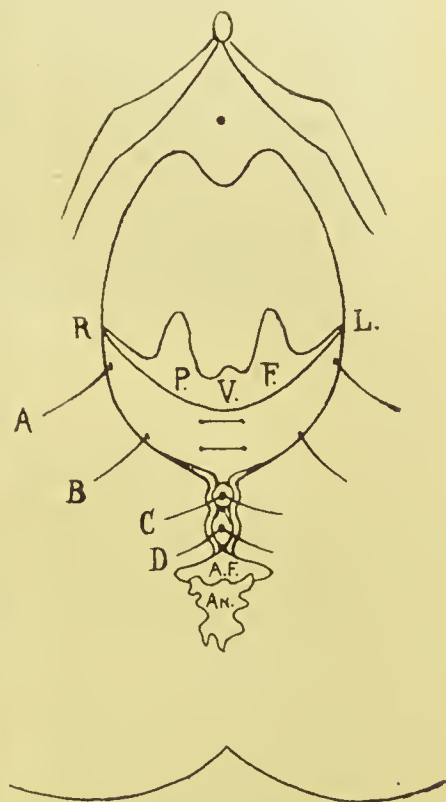


FIG. 16.

FIG. 15.—The two lower sutures, D and C, have now been tied, and the anal flap, A F, is shown in position. Sutures B and A still remain to be tied.

FIG. 16.—All the sutures have been tied, and the flap of posterior vaginal mucous membrane, P V F, is left to fall against the posterior surface of the newly-formed perineum.

membrane into the rectum. It is always well to remove the suture, and if the pus has burrowed to open the abscess and apply hot boracic fomentations.

Another complication which has been met with is the formation of a hæmatoma, from a suture passing through a vein. This may suppurate, or, if it causes any inconvenience, it may be incised and the clot turned out.

The sutures are allowed to remain in for two or three

weeks, and are then removed. In removing the sutures, it is always well to place the patient in the lithotomy position, so as to have a clear view of the field. If cut too short, it is very difficult to remove the sutures, as the ends become buried in the tissues. If left in, they give rise to future inconvenience, as the patient feels them when she is seated. The best sutures are those of silkworm-gut, salmon fly size, which can be obtained from Wilson, Quay de Louvre, Paris.

# CURETTAGE OF THE UTERUS.

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## INDICATIONS.

### **Chronic Endometritis and Metritis.**

THESE are the conditions that most frequently call for the use of the curette. As, however, both are diseases into whose etiology many factors enter, it will be most rational to consider the factors in their causation, in order that we may rightly comprehend which cases are suitable for operative treatment. We have combined the two diseases under one heading, for while it may be convenient to separate them when describing them as pathological conditions, yet in every-day practice it will generally be found that they occur together. Sinety well remarks: 'How shall we imagine that the mucous membrane presents the lesions of an acute disease without participation of the tissues below? Or how shall we suppose that the glands are involved, without observing at the same time that there is an alteration in their lymphatic sheaths, which communicate freely with the lymph spaces of the parenchyma?'

### **Chronic Endometritis and Metritis subsequent to Parturition.**

**After Abortion.**—Patients frequently tell us the following history: They have had a miscarriage some weeks or months previous, and since then have had a bearing-down,

a backache, menorrhagia, metrorrhagia, and leucorrhœa. The leucorrhœa and hæmorrhage are both signs of the chronic inflammation of the uterus, and one is often surprised at the profuse hæmorrhage that is associated with quite a small piece of placental tissue left in the uterus. Schroeder long ago pointed out that the inflammation that follows on an abortion is generally an interstitial endometritis, and menorrhagia is its characteristic sign. The endometritis in some of these cases may also be due to an incomplete or defective involution of the decidua serotina or vera. The cells of the decidua, instead of diminishing, undergo a retrograde metamorphosis, and one finds islands of decidua, about which there is active proliferation of cells, and from these islands the inflammatory process spreads over the whole of the mucous membrane.

Schroeder, however, plainly points out that the condition differs entirely from those cases of retained placenta after abortion where one of the chief signs is hæmorrhage, this being due, not to inflammation, but to incomplete contraction of the uterus and its vessels. The latter condition may necessitate a curettage, as would the others mentioned above.

Intimately connected with this subject is the consideration of the fate of retained fragments of placental tissue. These may, and often do, retain their structure and vitality, and they may then increase in size, not from an active proliferation of their tissues, but merely by a process of aggregation, due to coagulated blood collecting on the surface of each fragment, and coating the little masses with fibrin. These may give rise to considerable hæmorrhages and other troubles, and they should be removed by the curette, while the endometritis may be treated at the same time.

If allowed to remain, they may, beside giving rise to



endometritis and hæmorrhages, undergo one of the following changes. Firstly, as Kustner has been able to show, we may have a transition into a tissue having the structure of a mucous polypus; secondly, we may have a malignant deciduoma develop; or, lastly, as Zahn has shown, in one case where a tumour was composed of placental tissue, and had taken its origin from a piece of retained placenta, the neoplasm grew through the walls of the uterus, producing by its perforation a fatal peri-uterine hæmatocele.

**Endometritis following on Labour at Term.**—The suggestion originally put forward by Schroeder, that the endometritis that follows a parturition at term is in most cases due to a puerperal infection limited to the mucous membrane, has been confirmed by the researches of Goenner, Döderlein, Straus, and others. Pieces of membrane left behind after a labour at term or after an abortion become centres from which infection can easily spread to the rest of the mucous membrane. Lastly, it has been recognised that after a full-time normal labour, the placental site may become the starting-point of inflammatory processes.

Bearing these considerations in mind, we now come to consider cases of displacement of the uterus after labours at term, due to subinvolution of the placental site, probably in many instances caused by inflammation of the endometrium, and amenable to treatment by the curette.

These cases may be acute or chronic. Firstly with regard to the ACUTE CASES. The uterus in course of puerperal involution takes up a position of anteflexion, and, lying more or less on the bladder, gives rise to no inconvenience. Occasionally, however, it will happen that the patient will be seized with violent tenesmus of the bladder and metrorrhagia. On examination, we find the uterus down behind the pubes and filling up the pelvis, the cervix is pressed back to the sacrum, and the fundus forward into the

bladder. Martin of Berlin has investigated some of these cases, and he found on introducing the finger into the uterus that more than half the cases showed an incomplete involution of the placental site on the posterior wall. 'The uterus was always easily raised up. In this way, then, was emptied out of the uterine cavity a considerable quantity of retained blood and lochial secretion. The relief of the woman attained immediately in this way was made complete as soon as energetic contraction of the uterus occurred, after appropriate stimulation by palpation of the uterine cavity or curettement of the placental site.'

**Chronic Antelexion after Labour.**—This condition may develop very gradually, and we may not be consulted until months have passed after labour. The patient will give a history of full time or premature labour, and she will complain that the bladder has been irritable, that there is a constant bearing-down pain in the pubic region, and also, as Martin first pointed out to us, 'a troublesome sensation of distension of the intestines.' To these symptoms are always added menorrhagia, metrorrhagia, and leucorrhœa. The bimanual demonstrates that the uterus is enlarged and antelexed, and the cervix is subinvolved.

Many of the cases are certainly due to incomplete involution of the placental site, or the retention of pieces of decidua. Should ergot and vaginal irrigation not relieve the condition, and should the uterus remain large and flaccid, the secretions profuse, and the hæmorrhages continue, 'then curettage of the uterine cavity, which is to be performed immediately in the case of profuse hæmorrhage, should be employed' (Martin). Tait agrees with this opinion, and says: 'The best remedies are ergot and the salts of potash, and finally the curette and cautery.' The same remarks, as regards treatment, will apply to retroflexion of the uterus.

**Endometritis associated with Lacerated Cervix.**—How far laceration of the cervix plays a part in causing endometritis we shall not attempt to decide. Suffice to say that with endometritis we frequently have a lacerated cervix, and with a lacerated cervix we frequently have endometritis. The curette in these cases, after a proper preliminary treatment, is invaluable.

Along with laceration of the cervix we often get an adenomatous condition of the cervix, known generally as 'erosion.' Bland Sutton has pointed out that when adenoma of the cervix is present, we frequently get catarrhal salpingitis, which causes dysmenorrhœa. On curetting the adenomatous cervix and the uterus, the dysmenorrhœal symptoms disappear, apparently because the catarrhal salpingitis clears up.

With laceration and erosion is at times associated mucous polypi of the cervix. A small polypus may give rise to considerable menorrhagia, but the growth can generally be removed with ease by the curette.

### **Endometritis arising independently of Parturition.**

In the following paragraphs we shall consider some of the less frequent causes of endometritis, the resulting disease being often amenable to treatment by the curette.

1. **Menstruation** in virgins, or in women at the menopause, in cases where some slight malformation exists (such, for instance, as a small polypus at the internal os), may be followed by endometritis. On correcting the deformity, by dilatation and curetting, the endometritis ceases.

2. **Amenorrhœa.**—In some cases where amenorrhœa extends over some months it is followed by floodings. This has been explained as due to hyperplasia of the mucous membrane of the uterus; the hæmorrhage may be so severe as to cause profound anæmia, and until the

membrane is scraped away no relief is attained. Some cases of bleeding at the menopause, apparently due to endometritis, are not relieved by the curette. In some of these the cause of the bleeding is connected with some pelvic nerve disturbance, so characteristic of this period. We should always be on our guard, however, when we have to deal with apparent endometritis at the menopause; the leucorrhœa and hæmorrhage may be signs of diffuse adenoma or malignant disease. Curetting here may help our diagnosis.

**Endometritis associated with Conical Cervix.**—These are cases that one hears little of, but which are fairly common. They were first pointed out to us by Martin in his clinic in Berlin, and we have met with them since.

On making a vaginal examination of one of these cases, we notice that the cervix is conical, and the os small and 'pinhole.' Bimanual examination at first leads us to suppose that we are dealing with an infantile uterus, and that it is retroverted and retroposed. If, however, we examine under an anæsthetic and with a sound, we find that the sound at first goes upwards and backwards, and then forward; the supravaginal portion of the neck is much elongated, and the small body is anteflexed. Martin says: 'The corpus uteri itself can often be found successfully in this class of cases only after very careful palpation. It often lies bent like a little projection quite on the anterior surface of the long neck, and it can be distinguished here by the bimanual method of examination, or else by pushing the finger along the lateral border of the neck.' Martin believes the condition is brought about by catarrh of the cervix. The treatment consists in dilatation of the cervix, and curettage of the uterus and cervical canal, and Martin further advises amputation of the cervix according to his method.



**Infantile Uterus.**—We are frequently consulted concerning the dysmenorrhœa of young women. We find these patients thin and anæmic and undersized, or, on the other hand, tall, with stooped shoulders and defective muscular development. It is, however, well to bear in mind Tait's observation that women of a fine and muscular build are frequently the possessors of an infantile uterus. If we decide to dilate the cervix in these cases in order to relieve the dysmenorrhœa, and in married women to help them to become pregnant, we shall frequently have recourse to the curette, as the cervical canal will be found much excavated and dilated from endocervicitis, and erosions may be present even in virgins.

**Dysmenorrhœa.**—Cases of dysmenorrhœa, when the trouble does not depend on grave tubal or ovarian disease, may be at times much reduced by curettage. Membranous dysmenorrhœa, and obstructive dysmenorrhœa from small growths at the internal os, may be especially mentioned under this heading. A small polypus may act like a ball-valve at the internal os. It is easily displaced from below by inserting a sound, and so may escape detection, but it prevents the escape of the menstrual fluid, and produces excessive pain.

**Ovaritis.**—In many cases of subinvolution of the uterus we get displacements of the ovaries. These prolapse and become enlarged and tender. When this condition has existed for a short time, we are frequently able to make an excellent cure of these cases by curetting the uterus. The uterus often thus undergoes involution, regains its proper position, and the ovaries no longer remain prolapsed.

Again, as Bland Sutton has pointed out, there are cases 'which are diagnosed as oöphoritis which are really instances of catarrhal salpingitis, and in a certain proportion of patients are associated with, and in some instances

secondary, to adenoma of the mucous membrane lining the cervical canal.'

Whether these tender swellings found on either side of the uterus in these cases are ovaries or tubes, the fact remains that frequently these cases become quite well when the curette has been carefully used.

### **Acute Endometritis.**

Acute endometritis never arises before puberty. After puberty it may be developed from cold at the period, sexual excess, introduction of dirty instruments, or as a complication of the exanthemata, cholera, or phosphorus-poisoning. None of these cases would probably require curetting. If, however, we have to deal with acute endometritis from gonorrhœal infection, or after parturition, we may then be called upon to use the curette. The reason for this is well expressed by Ballantyne: 'We have gradually come to learn that nearly all, if not all, the septic and infected conditions of the genital organs spring from micro-organismal infection of the endometrium, either primarily, or secondarily from vaginal infection. The streptococcus or the gonococcus obtains a lodgment in the uterus, and endometritis is set up; sooner or later, and more commonly soon than late, the infection spreads to the tubes, and, having reached them, it does not take long to pass through their fimbriated extremities into the peritoneal cavity; virulent peritonitis, and, secondarily, suppurative cellulitis, are thus set up. All these processes—septic or specific endometritis, salpingitis, pyosalpinx, ovarian abscess, peritonitis, and cellulitis—are simply links in a chain of pathological results. If we can prevent the forging of the utero-tubal link, we stop the formation of the chain effectually.'

We shall now examine into the question, Can an operative

measure such as curetting be of service in *acute gonorrhœal endometritis*? Tait condemns curetting, and advises rest in bed and pessaries of lead and opium; 'vaginal injections are to be sedulously avoided.' After the acute stage has passed off, intra-uterine medication may be begun cautiously, but the risk of sending the inflammation along the tubes must always be borne in mind.'

Martin says, *re* gonorrhœal metritis: 'If, in spite of treatment, the infection has extended to the deeper organs, I have as yet learned no means of combating such an extension; every surgical procedure seems to be *contraindicated* in view of the danger that the spreading irritation will be increased, therefore only symptomatic treatment remains.' Zweifel, in a recent elaborate paper on tubal disease, says that he believes that the majority of suppurating tubes are the effects of gonorrhœa; but, nevertheless, in gonorrhœal endometritis he thinks intra-uterine treatment most unadvisable, and he has seen danger result from it. Many others share the opinion of these men, whose authority in gynæcology is second to none.

Pozzi represents the other side. He says: 'For acute gonorrhœal metritis I employ curetting, followed by intra-uterine cauterization with concentrated chloride of zinc on cotton-wool rolled round a sound.' The position taken up by such men as Pozzi is that, although there is slight danger from systemic infection, still, the gonococcus, if left undisturbed in the uterine cavity, will not invade the lymphatics, but will most probably extend along the tubal mucous membrane. By vigorous local treatment they hope to so cleanse the uterus that this extension will not take place. The point is one that must be settled in the future; for our own part, we do not curette in these cases, believing that the cleansing of the uterus is impossible at the time, and that reinfection will soon follow, if not by the

gonococcus, at all events by other germs. Thus, Gottschalk and Immerwahr have recently shown that, after the subsidence of the acute stage of gonorrhœa, the resistance of the endometrium to bacteria, especially to pyococci, is materially diminished, and it is possible that an extension of the inflammatory process towards the oviducts and peritoneum may be set up by the invasion of staphylococci from the vagina, where they are so frequently found.

**Puerperal Infection after Labour at Term.**—In puerperal infection after labour at term, we have a double danger to deal with: the systemic infection, and the spreading of the inflammation to the surrounding parts. Should we hesitate to operate for fear of sending the trouble along the tubes or into the perimetric tissue, our patient may die from septic poisoning.

What are, then, the indications for curettage?

There are some who are inclined to operate the moment the temperature rises above 100° F.; to make this a rule is only to court trouble. I have frequently heard Tarnier express himself after the following manner: When the temperature rises above 38°, endeavour to ascertain if the trouble is *not* connected with the genital organs. If you satisfy yourself that it is connected with the genital organs, and that it is not due, say, to lesions in the vagina or perineum, then proceed to irrigate the uterus with iodine-water. Repeat these injections several times in twenty-four hours, and if you find no improvement, say, in the odour of the discharges or in the patient's general state, the pulse and temperature keeping high, then think of the curette.

A not unusual condition is as follows: A piece of membrane or placental tissue is retained, and after some days the temperature rises in the afternoon and falls after midnight, and with this the pulse increases to 130, the



tongue may remain quite clean or become red, but the lochial discharge always becomes foetid, and we have a considerable hæmorrhage going on, and the clots that come away are foul-smelling. Here, if intra-uterine injections fail, the curette may be used with advantage. It removes the membrane and stops the hæmorrhage. Tarnier does not consider the presence of perimetritis, oöphoritis, or even peritonitis in the first stage, as contra-indications to curettage, for he rightly says we must remove the cause of the infection if possible.

We have several times had occasion to curette after labour, and we find that this can be conveniently done in Sims' position, and without an anæsthetic. The uterus is pulled down after a speculum has been introduced into the vagina, and the uterus is then irrigated and curetted as described in the latter part of this paper.

### **Retained Secundines after Abortion—Hæmorrhage— Putrid Infection.**

After a miscarriage at three months the foetus is frequently expelled, and the secundines retained for a few hours, days, or weeks. In the majority of cases the secundines are expelled before six hours have elapsed. Should the secundines not be expelled, are we called upon to act? Tarnier says most emphatically, No! He advises a strict *expectation antiseptique*, which consists in keeping the patient in bed, bathing the vulva with antiseptic fluid, and administering vaginal douches every four or six hours. To prove that this is effectual, he alludes to two cases treated in this way. In one the placenta was retained for thirty-three days, in the other for fifty-seven days, yet neither exhibited any septic symptoms, but nevertheless both had to be operated on, on account of sudden hæmorrhage. To advise such a treatment among poor

people would be an absurdity; that antisepsis could not be carried out, that the patient would not remain in bed, and the fact that serious hæmorrhage may come on at any moment, are sufficient reasons for looking on the above treatment as being only fit for hospital cases. We most strongly advise that the secundines be removed after twenty-four hours have elapsed. In some cases, where no antiseptic precautions have been taken, the secundines have often been retained for weeks, and we are then called in, not on account of septic trouble, but on account of sudden and serious hæmorrhage. Under such circumstances the majority of surgeons would proceed to rid the uterus of its foreign body. The only obstacle to this may be from the non-dilatation of the cervix. Should the hæmorrhage be severe, and we cannot empty the uterus at once, it is a good plan to tampon the vagina, as Tarnier advises, or to tampon the uterus, as Dührssen advocates.

The latter plan is not without danger, and Bar has recorded a death after such treatment; he observed that the blood, being prevented from escaping from the os, was driven along the tubes, and free iodoform was found on the intestines. Should we not plug, we may use vaginal or intra-uterine hot douches. Should the cervix be dilated, extraction of the placenta by means of our fingers, by forceps, or by the curette, is good treatment. Should we wish to dilate, we may use our fingers, Hegar's sound, Tarnier's bag, or Barnes', or that of Champetier de Ribes, or tents. Should hæmorrhage not occur, we may have to deal with a case of 'putrid infection.' It would appear that this is due to the presence of the 'septic vibrio,' but frequently along with these micro-organisms we find streptococci and staphylococci, and these, if left undisturbed, will in time cause puerperal septicæmia. No one, no matter how conservative, would attempt to advise that

the secundines should be left when once the temperature begins to rise and the lochial discharges become foetid. The patient is then menaced from two points—the damage that will follow locally, and the danger to life from the general infection. To empty the uterus as quickly as possible, and to cleanse it with the irrigator, the fingers, the curette, or the écouvillon, are universal axioms. ‘Il est important, en effet, d’avoir recours aux procédés rapides de dilatation, afin d’évacuer l’utérus le plus tôt qu’on pourra, car le salut de la femme en dépend’ (Tarnier).

Should we on attending an ordinary abortion, in which the foetus, and afterwards the membranes, have been expelled—should we in such a case curette? Opinions differ widely on this point. Winckel says: ‘Since opinions differ so widely, I will again formulate my experience. I maintain that if in an abortion or immature labour fragments of foetal membrane or placenta have remained behind, we are justified and obliged to proceed to operative interference only when there is severe hæmorrhage from the uterus, or fever or sloughing sets in. In the absence of these indications, I am strongly opposed to cleansing of the uterus either by hand or instruments, because the method furnishes no guarantee against small remnants being left behind, and against direct inoculation.’ With this Tarnier and others quite agree. They are opposed to operative interference until grave symptoms are present. Treatment, however, is becoming more prophylactic every day, and although one must admit that many women miscarry and no ill effects follow, either immediately or remotely, when they are not curetted, still, the fact remains that a great number of women suffer for months and years after a miscarriage, because the uterus has not been *completely* emptied by Nature or by the surgeon. At the time of an abortion it is impossible to tell how much of

the placenta is really left behind without a digital examination or a curetting. We have curetted the last fifty cases of abortion immediately on being called to the patient, and it is surprising how much membrane is left behind in the majority of cases after abortions which have apparently terminated quite satisfactorily. A curetting done with a due regard to cleanliness is a procedure attended with little danger; and we cannot help thinking that, if the operators were only trustworthy, the procedure above advocated would in the future come to be regarded as right and proper, and would help to lessen the number of cases of endometritis and tubal disease.

In connection with the use of the curette in any case where the placenta is adherent, it is well to explore the uterine cavity well with the finger during the operation, and to remember the observation made by Bar, and published by Gerband in his *thèse*, viz., 'that the uterine walls are very frequently much thinner at the points where we get the placental adhesions;' to use a curette too vigorously may cause a perforation of the uterus, especially in cases of putrid infection, when the walls may have become soft. In case, also, of hydatid moles, when we have emptied the uterus of the main body of the mole, we may frequently have to curette the remaining portions away; 'this, however, sometimes becomes dangerous, owing to portions of the myxoma having penetrated into the uterine wall' (Winckel).

### **Cervical Laceration and Gangrene after Parturition.**

In some cases of laceration of the cervix, when the tear is very extensive, we may get gangrene, and then an acute septicæmia develops.

We were once called into consultation to see a patient five days after a full-time labour; the labour had been long



and exhausting. Her temperature was 106° F., the pulse 140, her abdomen very much distended, her tongue glazed. The lochia were very foul. On examination we found the uterus quite empty and well contracted, but the cervix was very extensively lacerated, and the edges and borders of the tear in a gangrenous condition. After a thorough curetting of the laceration, the patient's temperature immediately fell, and she made an excellent, though slow, recovery.

### **To Induce Rapid Abortion.**

Dolérís recently reported a case of a young woman with disease of the aortic valves. After conception the cardiac affection became so grave that he considered it necessary to dilate the uterus with laminaria tents, and then to rapidly empty it by the curette. The results were very excellent. The reason for this course was on account of the profound cachexia of the patient. Dolérís was afraid that if she lost any quantity of blood she would succumb.

In such circumstances it would be advisable to use a dull wire curette, to dilate with tents, and to operate before the third month. Peuch, Blanc, and others, have written extensively on this procedure, and are in favour of this method.

### **Uterine Tumours.**

**Fibromyomata.**—It sometimes happens that in dealing with a case of fibroid tumour of the uterus the patient will not submit to the major operation. Curetting under such circumstances has been extensively used to relieve the menorrhagia. This procedure has the sanction of many great operators, such as Simpson, Gusserow, Pozzi, and others, and as a palliative measure frequently answers admirably. Hæmorrhage is most frequent in multinodular submucous fibroids, and the blood is said to come, not from the

mucous membrane over the fibroid, which is frequently quite thin and atrophied, but from the endometritis set up in the hypertrophied mucous membrane of the rest of the uterine cavity. Oscar Semb has recently shown that in some cases the hæmorrhage is, however, due to the hypertrophy and congestion of the muscular rather than of the mucous coat.

Curetting followed by a vigorous use of caustic, as Gusserow advocates, may therefore be tried in selected cases, and we may hope to get such excellent results as those published by Orloff, working in Lebendeff's clinic, where, out of ten cases curetted, nine were very much benefited. If there is danger in the operation, it comes from the fact that we may open one of the dilated veins of the capsules of the tumour and very severe hæmorrhage may occur; also sloughing may be produced, leading on to septicæmia. If we are called on to deal with a fibroid that is already sloughing, it may be possible to remove it almost entirely with the curette. We were able to do so recently in a case where an interstitial fibroid reached up to the umbilicus. The woman had been treated by various methods for some sixteen years, and when we examined her we found a large sloughing mass in the vagina; we immediately proceeded to curette this away with a large spoon curette, and gradually removed nearly the whole fibroid, leaving behind only a thin shell of uterine tissue with nobs of fibroids. The patient made a good recovery, though several subsequent curettements have been necessary, and she still has a foul discharge.

**Malignant Disease of the Uterus.**—Hysterectomy has now become the recognised treatment for malignant disease of the uterus, provided the case is seen sufficiently early. There are, however, some cases which come to us too late, cases in which the broad ligaments are already infiltrated,



or where fistulæ have formed. The curette may be used here, as Simon first pointed out, to give temporary relief from the offensive discharges and from the excessive hæmorrhages. Thomas well remarks: 'The most efficient means at our command for the control of hæmorrhage from a cancerous cervix, or even body of the uterus, is the sharp curette.' After the curette has been freely used, the excavation is packed with gauze soaked in chloride of zinc.

Kaltenbach, writing on this treatment of malignant disease of the uterus, says: 'In some cancers and sarcomas which were confined to the mucous membrane of the body of the uterus, a tolerable existence was secured for many years by repeated curetting. Nor is even radical recovery excluded in beginning malignant degeneration of primarily benign adenomata.

### **Preliminary to Major and Minor Operations.**

Before performing a vaginal or an abdomino-vaginal hysterectomy for cancer of the cervix, it is always wise to curette away any ulcerated masses of tissue that may be about the cervix. We have frequently seen Olshausen do this in Berlin some days before he performed the major operation. In cases where the uterus is rotated, as in Martin's operation, this procedure is still more advisable.

Martin is much given to curette the uterus before performing a colporrhaphy if there is any discharge from the uterus, for, he rightly holds, if we have a discharge running over the new wound, we have a greater risk of infection and failure; added to this, it must always be borne in mind that cases which require a colporrhaphy usually require curetting on account of the presence of endometritis.

Before performing hysteropexy we are accustomed,

several days previous to the major operation, to curette the uterus, since cases that call for hysteropexy usually have endometritis. Recently, in examining an elderly woman with prolapse of the uterus with a view to hysteropexy, we found the internal os quite closed. On dilating this, six ounces of pus escaped from the uterine cavity, which was much dilated. Had we performed a hysteropexy in this case, it is quite possible that the stitches would have become septic, as we are accustomed to bury our sutures deeply in the muscular tissue of the uterus. We curetted the case, and later on performed the major operation successfully.

### Diagnostic Purposes.

In cases where we suspect malignant disease, we may employ the curette to remove some of the uterine tissue, which, on being hardened and stained, may then be examined under the microscope. Bowreman Jessett concludes a recent paper on the treatment by operation of seventy cases of malignant disease of the uterus with the following remarks :

1. 'In all cases of women suffering from leucorrhœal discharge, do not hesitate to insist upon a vaginal examination.

2. 'If on examination the discharge is seen escaping from the uterine cavity in a woman at, or past, the menopause, which discharge is slightly coloured or offensive, dilate the canal and curette the cavity of the uterus for microscopical examination.

3. 'If the report of the pathologist be unfavourable, at once urge total extirpation of the organ.'

In the same number of the Gynæcological Society's Transactions in which the above remarks appear there is related a case of hysterectomy performed after a curetting for diagnostic purposes, columnar-celled carcinoma having

been diagnosed. The diagnosis was confirmed after the major operation by making sections of the uterus. We have often seen Martin adopt this plan of diagnostic curettage in cases of diffuse adenoma of the uterus, which he considers a disease that calls for hysterectomy. The diagnosis is made sure by examining the fragments removed after a curetting.

In diagnosing ectopic pregnancy, Webster says, 'the information to be derived from curetting is very valuable. While the presence of decidual tissue is quite sufficient, when taken along with the signs and symptoms of ectopic gestation, to establish a diagnosis of pregnancy, I have already shown that the absence of this tissue in any particular scraping does not exclude its diagnosis. Though in all cases of ectopic pregnancy there is at some period decidual change in the uterine mucosa, under certain conditions, *e.g.*, after expulsion of the mucosa from the uterus, a scraping may not, of course, show anything conclusive.'

In medico-legal cases concerning abortion, curetting may be resorted to in order to ascertain evidence of recent pregnancy. Winckel was able in one such case to say that a patient had been pregnant, for, after curetting her, he found remains of the membranes.

### CONTRA-INDICATIONS AND DANGERS.

**Menorrhagia and Metrorrhagia.**—These conditions frequently call for the use of the curette, yet it must never be forgotten that both are *symptoms*. No greater mistake is made than to suppose that, because a patient is suffering from menorrhagia or metrorrhagia, she must necessarily be curetted.

Before any decision can be arrived at in these cases, certain questions should be considered. For instance, we should ask ourselves, Whence comes the blood? Is it

from the vulva, the vagina, or the uterus? At what stage does genital hæmorrhage cease to be physiological, and when does it become pathological? And as a help to the latter questions, we should proceed to investigate its quantity, its duration, and its frequency. After this we should review the etiology of genital hæmorrhage. To help us in this, we have adopted the classification of Auvard, as follows, and have enlarged each of his subdivisions :

1. Genital causes  $\left\{ \begin{array}{l} \text{Puerperal.} \\ \text{Non-puerperal.} \end{array} \right.$

2. Organic, not genital causes.

3. Nerve causes.

4. External causes.

5. Unascertainable causes.

1. **Genital Puerperal Causes**, arising during (*a*) pregnancy; (*b*) accouchement; (*c*) post-partum, or later.

(*a*) Endocervicitis and erosion; fibroids; cancer; menstruation; placenta prævia; commencing abortion; extra-uterine pregnancy; hydatiform mole.

(*b*) Wounds; rupture of uterus; inertia; accidental hæmorrhage.

(*c*) Retained placenta and membranes; subsidiary placenta; subinvolution; inversion; irritation of breasts by suckling.

1. **Genital Non-puerperal Causes** :

(*a*) From the vulva or vagina—cancer; tubercle; varicose veins; violence; ruptured hymen.

(*b*) From the uterus—examinations by finger or instruments; cancer; tubercle; sarcoma; fibroids; metritis; endometritis, especially hæmorrhagic or villous endometritis; angioma.

(*c*) Tubal disease; ovarian disease, especially small cystic ovaries.



2. **Organic, not Genital.**—Morbid conditions of the blood, such as Bright's disease and scurvy; exanthemata, such as the 'uterine epistaxis' of typhoid; small-pox and malaria; in cases of jaundice; plethora; hæmophilia; passive hyperæmia, where general, as from obstructive heart, lung, or liver diseases, or local, as from the pressure of a tumour or from displacements of the uterus; tubercle; lead and phosphorus poisoning.

3. **Nerve Causes.**—Lumbo-abdominal neuralgia; psychological; adolescent state; menopause.

4. **External Causes.**—Coitus; violence; masturbation; tight corsets; variation in altitude; baths; alcoholic drinks; sinapisms to the breasts.

5. **Unascertainable Causes.**—The so-called idiopathic hæmorrhage.

We have not attempted to make an exhaustive list, but the above will serve to warn us against jumping to a too hasty conclusion in any particular case of menorrhagia or metrorrhagia.

**Tubal Disease.**—To ascertain the exact condition of the Fallopian tubes before curettage is attempted is the imperative duty of every operator. The greatest authorities on gynæcology, such as Tait, A. Martin, Zweifel, Hegar, Kaltenbach, insist on this point most emphatically. The reason for this is, that it is generally recognised that grave tubal trouble is an absolute contra-indication to curettage. Notwithstanding this clearly-enunciated rule, there are men who will deliberately curette, even though they are aware that the tubes are much affected. Thus, curetting has been performed when the subject had pyosalpinx, with the view of evacuating the pus, and draining the tube through the uterine cavity. The dangers that must always stare one in the face are, firstly, that mere traction on the uterus, or the necessary manipulation, may rupture the

pyosalpinx into the abdominal cavity, and cause a fatal peritonitis. Secondly, that, the tubes not being evacuated, the trouble is increased. It may here be remarked, with regard to the matter of draining pus through the uterine cavity from the tubes, that in the majority of cases of grave tubal disease the uterine end of the tube is generally closed. That pus has been evacuated by this method no one will deny. Thus, Liell records a case of double pyosalpinx evacuated through the uterus after curettage, and this was followed by pregnancy. But these cases are the exception; and the best authorities, such as Martin and Tait, men who have had to deal with tubal cases by the thousand, will have nothing to do with such treatment.

In mild incipient salpingitis, or in catarrhal and some forms of chronic salpingitis, especially when the tubal mischief is dependent on endometritis, we have a freer hand; in fact, catarrhal salpingitis is treated much on the same lines as endometritis, and we may use the curette in many such cases with advantage. Pozzi remarks: 'We may hope to cure salpingitis along with the endometritis, provided the lesions do not have time to become permanent. Curetting the uterus and the injection of iodine has often done me good service in curing an incipient salpingitis.' Particularly would we curette if the salpingitis was obviously the result of the retention of a piece of necrotic tissue in the uterine cavity. To leave this would only increase the salpingitis; to remove it would not be dangerous, if the operation were performed with skill and antiseptic precautions. The same remark would apply to a patch of necrotic tissue in a fibroid tumour of the uterus. To leave such a patch might cost the patient her life; such a result has been recorded by Bland Sutton, the necrotic mass having set up salpingitis, and then a fatal peritonitis.



In arriving at a decision as to whether we should curette when salpingitis is present, we must always weigh the uterine trouble against the tubal. It may be that the salpingitis is of long standing and of little moment, whereas the uterine trouble is grave and active. This is well illustrated by a case recently published by such a conservative operator as Macnaughton-Jones. The patient was aged forty-eight, and had chronic suppurative endometritis with salpingitis. 'The uterus at the time of operation was enlarged, the cavity measuring four inches; it was retroverted and retroflexed, in which position it was fixed. On free dilatation a quantity of pus poured from an enlarged fundal cavity. Curettage was conducted . . . and the final result was complete cure of the discharge, the reduction of the uterus to about one-half its size, and the restoration of mobility.' The woman lost her pains, and was able to do her duties with ease.

Polk and others have recently brought forward a good deal of evidence in favour of curetting in chronic salpingitis, the evidence going to show that many of the cases are permanently relieved, and an abdominal section is not found necessary.

While these things may be said in favour of the careful use of the curette in cases of salpingitis, the fact still remains that day after day patients are curetted merely because they have menorrhagia or metrorrhagia; the hæmorrhage, being the symptom of tubal disease, is lost sight of, and cases of mild salpingitis are converted into grave tubal lesions.

We have heard Mr. Tait say this many times, and we have seen it often ourselves—so often, in fact, that we have been led to the conclusion that the curette is one of the most potent factors in the production of grave tubal mischief from mild tubal troubles. Finally, therefore, we

may lay it down as a recognised rule that salpingitis generally contra-indicates curettage of the uterus.

**Perimetric Exudations accompanying Salpingitis.**—These exudations have been treated by curettage of the uterus and forcible dilatation by such men as Walten of Brussels and Pouillet of Lyons. The great danger of a mistaken diagnosis—*i.e.*, of mistaking the collection for a pyosalpinx—must be always in our minds. That it is occasionally permissible to curette in these grave conditions is shown by the following quotation from A. Martin: ‘I have frequently made an exploratory operation of curetting when the indications have been urgent, in cases where there exists peri- or para-metritis, disease of the ovaries or tubes, and if I have used the most extreme care in disinfection with the women, and if I have covered the abdomen with ice immediately after the curettage, then it is only in the most exceptional cases that any sort of reaction is induced, and, at any rate, it is much more rare than formerly after the most careful dilatation.’

**Cystic Ovaries.**—Tait has pointed out the fact that we may get the most profuse hæmorrhage in cases where there exist small cystic ovaries. These cases are frequently curetted, and Tait often did so himself before he understood the true nature of the hæmorrhage. This treatment is almost useless, for although the bleeding may become somewhat less for a time, it always returns with increased force. The proper treatment is to remove the ovaries and tubes, and we should not waste too much time with the curette, lest the patients become so weak that the major operation cannot be performed with safety.

**Angioma of the Uterus.**—Pictévin and Petit have related a case of angioma of the uterus upon which they performed a curettage. The uterus was characterized by a notable increase in the number of uterine vessels and abnormal

development of the perivascular connective tissue. The uterine cavity measured three and a half inches, and the patient suffered from menorrhagia. A curettage was performed, but it caused such profuse hæmorrhage that the operation had to be finished by the removal of the uterus.

### Dangers of Curettage.

**Perforation of the Uterus.** — When curettage was first introduced by Récamier, perforation of the uterus was common, because the curette used was always sharp. Since, however, the dull curette has grown in favour this accident has become much less frequent. It is to be noted, as Auvard has pointed out, that perforation sometimes occurs not from the curettage, but from the preliminary dilatation.

In cases of malignant disease perforation is not uncommon, many well-known operators recording this accident. Thus, Spiegelberg relates that he perforated a cancerous uterus, and Birchhoff observed peritonitis after curetting a gangrenous melanotic carcinoma of the fundus from rupture of a subperitoneal nodule into the abdominal cavity.

If the curettage is performed with a blunt Simon's spoon, perforation is not easy, and not likely to occur, but it is comparatively easy to run a sharp Récamier curette through a uterus where putrid infection has arisen from retained secundines. In fact, in some cases it requires very little force to send any instrument through the uterine walls. Tait says that he has seen an eminent Continental professor of midwifery pass a sound through a uterus when gently replacing it from its retroflexed position. He also observes that, in some cases where the curette passes through the uterine wall, the real explanation is that it passes through a 'metro-peritoneal fistula.'

Two precautions will help to prevent us having this accident. Firstly, that, when possible, we should keep one hand pressed on the abdominal wall, and endeavour to locate the spot in the uterus that we are curetting. Secondly, if in performing a curettage we suddenly find that our curette is reaching up beyond what we have already found to be the length of the uterine cavity, we should immediately withdraw our instrument and measure with the sound.

In regard to this subject, Doléris thinks that when the curette reaches up as just explained we may be deceived into thinking that we have perforated, when in reality the atony of the uterine walls has allowed us to depress them into a funnel-shaped pocket.

In both the cases in which we have perforated while curetting we have immediately stopped the operation, and have cleansed the uterine cavity with dry wool on a Playfair's probe, but have not introduced any styptic. Next day there was a slight local peritonitis, and in one case a small hæmatocele in Douglas's pouch; both cases, however, recovered without any apparent mischief. Pozzi remarks: 'The reported observations on this point prove to me the comparative harmlessness of such punctures under antiseptics.' Winckel says that a surgeon has been convicted of manslaughter when perforation by a curette resulted fatally.

When the accident does occur, the use of morphia and ergot would be advisable.

Should we be dealing with a uterus after labour at term, we may have the unpleasant complication of a hernia of the intestine. In such a case laparotomy would be necessary.

Should the case be one of septic endometritis, it might be advisable to pack the uterus with iodoform gauze.



Lastly, the cervix may be extensively lacerated in performing a curettage. Thus, Fars observed such an accident when a surgeon was endeavouring to curette the uterus with the finger-nail.

Sepsis, peritonitis, cellulitis, septicæmia, and pyæmia, have all occurred after curettage, and we have seen a death in a London hospital two days after curettage of a polypus. The left-hand ligament was much distended with inflammatory exudation, the vessels being enormously enlarged. In days gone by these accidents were frequent from want of antiseptic precautions and from the use of dirty spongetents.

The habit that is still common of curetting in the consulting-room is a fertile source of sepsis, as proper disinfection is not possible. Cellulitis and peritonitis are both more likely to follow a curettage when they have been in existence in a chronic form previous to the operation.

Winckel says that after curetting he has seen a left-sided parametritis result; the pus burrowed under Poupart's ligament, between the adductors of the thigh, and the patient remained dangerously ill for months.

**Hæmorrhage.**—Profuse hæmorrhage is rare after curetting. It may be expected to occur in case of hæmophilia, or in cases where a large sinus has been opened in the capsule of a fibroid, also after operating on malignant growths. It may also occur after curetting for fungous, hæmorrhagic or villous endometritis, or after recent abortions.

Tarnier says that he has seen a woman die of hæmorrhage after a surgeon had endeavoured to remove the membranes of an abortion with a pair of forceps. He remarks that the woman would probably have been saved if the uterus had been tamponed, and this is certainly the treatment to be adopted in any case of hæmorrhage after the use of the curette.

**Abortion.**—There are some women, as Chrobak has pointed out, who are sufficiently well acquainted with the subject to give us a history that would point to the use of the sound by us, simply because they desire to have an abortion. The same remarks hold good as regards curetting. A woman who has had a previous abortion—who is, say, six weeks pregnant—may tell us truly or falsely that she is constantly unwell. On examination, we find an enlarged womb, which we may imagine is due to subinvolution; we may find a lacerated cervix, erosion, and a bloody discharge. In such a case, if curetting is advised, we find too late that we should have adopted an expectant treatment.

**Sudden Death.**—Death may quickly supervene after a curettage. In one case that came under our notice, a practitioner was called to a case suffering from sudden profuse metrorrhagia. The patient had passed a large piece of membrane, and the physician, thinking that he had to deal with an ordinary case of abortion, proceeded to curette the uterus. Death rapidly followed, and the post-mortem showed that the patient was suffering from a ruptured tubal pregnancy; the decidua had been expelled, and had helped to mystify the operator. A careful bimanual examination would have helped to prevent this disaster.

**Rare results,** such as superinvolution, have been known to follow curettage. Disastrous results are not uncommon. Both partial and complete obliteration of the uterine cavity have been described by Fritsch, Veit, and Kustner.

## TECHNIQUE.

**Instruments.**—Curettes, volsellæ, Simon's specula, retractors, sounds, Playfair's probes, Clover's crutch, dilators,



Braun's syringe, cautery or caustic, iodoform gauze, douche, dry plug, swabs, vaselin, antiseptic solutions, anæsthetic.

### Remarks on Instruments.

**Curettes.**—These may be grouped under six headings :

1. The spoon of Simon. This is always used by Tait, and is most excellent for every variety of curettage. It should be made entirely of metal, and the handle should be very bulky, so that we may be able to use it with great delicacy. Perforation with such an instrument is rare. It may be very sharp or dull.

2. The Récamier-Roux is the one invariably used by Martin, and is exceedingly useful. It is dull or very sharp, and care must be taken, as perforation is easy in case of septic endometritis, when the tissues are soft and flabby.

3. Thomas's dull-wire curette is one much in favour in America, and it is considered a very safe instrument, and having no real cutting edge, it is very useful in curetting the uterus after labour at term.

4. Sims' sharp curette is made of steel, and is very useful in cases where there is old-standing metritis and interstitial endometritis.

5. Emmet's curette forceps is valuable in cases of recent abortion.

6. The finger-nail is useful in exploration, and after miscarriages or full-term labours.

**Volsellæ.**—The most useful are those used by Martin, and are really American bullet forceps. They have a single point on either extremity of the blade, while Museux's forceps have two prongs.

**Simon's Specula** are convenient because the blades vary in size and shape. Auvard's speculum has a weight attached, and is self-retaining. Martin always employs side-retractors in addition to the specula.

**Playfair's Probes.**—These should be made entirely of metal, so that they can be well cleaned. They are covered with a thin roll of cotton-wool at one extremity. The roll should not be thick, else the caustic will be squeezed out of it when endeavouring to insert it through a not too wide os. Some operators use, instead of metal probes, wooden skewers (pheasant skewers). These are destroyed after each operation.

**Clover's Crutch.**—This is invaluable when you cannot get efficient aid in private houses. It may be easily made by a saddler for a few shillings. The one that we have used for some years is made of a piece of broom-handle eighteen inches long. At each extremity of this is a piece of leather, covered with chamois, nineteen inches long. A few inches from each extremity is a piece of leather (with a buckle) nine inches long, while close to the other end is a piece—perforated with numerous holes—fifty inches in length. A bandage may be used instead of this crutch. It is applied as follows: First tie it round one leg just below the knee, then pass it round the neck and under one axilla, then tie it round the opposite leg, and bring the end to the first leg, when it may be again fastened.

**Uterine Dilators.**—Hegar's are sold in sets of twenty-five; usually there is not a sufficient graduation between the various numbers, so that it is wise to employ alternately with the Hegar's such an instrument as Marion Sims' dilator.

**Cautery and Caustics.**—Mr. Tait always uses Paquelin's cautery after curettage.

If we use caustics, we have a large list to choose from. Iodine and carbolic are very useful: 320 grains of the first to 8 ounces of liquid carbolic acid. Glycerine two parts, and carbolic acid, No. 2, one part, is very useful; its caustic action is not so severe, and it does not stain.

Chromic acid, ʒi. to ʒi. of water. Nitrate of silver, ʒss. to ʒi. Liniment of iodine. Saturated solution of sulphate of zinc or sulphate of copper. Tr. ferri perchlor., with equal parts of glycerine. Zinc chloride, 50 per cent., with water. Martin always injects liq. ferri persulphatis by means of a Braun's syringe.

### Preparation of the Patient.

If there is no immediate reason for operating, we should choose a time soon after a period, because the uterine cavity is always more dilated at this time. Should we operate with the intention of relieving spasmodic dysmenorrhœa, a time halfway between the periods is to be preferred.

The night previous to the operation the lower bowel should be emptied by an enema. When the patient is on the table and under the anæsthetic, it is well to either shave the hairs away from the labia or trim them short with a pair of scissors. While few operators in private take sufficient trouble to cleanse the vagina, this is, nevertheless, an important point. It has been shown beyond all doubt that septic germs dwell not only in the vagina, but also up as far as the internal os; and even in healthy women streptococci and staphylococci are frequently present in the vagina.

Tarnier has pointed out from his own elaborate experiments, and from those of Steffeck, that mere syringing of the vagina, even though done with sublimate, is not sufficient to cleanse the vagina. He insists on a thorough *désinfection avec frottement*—in other words, washing the parts first with soap and water, and then disinfecting them with some germicidal fluid. This is always done by German operators, and usually takes from ten minutes to a quarter of an hour to do thoroughly.

It is perhaps unnecessary to remark that the operator's hands must undergo the same process.

### Position of the Patient.

If we use an anæsthetic, the most convenient position is the lithotomy one. If, however, we curette the patient while in bed without an anæsthetic, Sims' is preferable. When possible, an anæsthetic is desirable, and the patient should be drawn to the end of the table, and a mackintosh placed under her, and on the floor we should have a bucket or vessel to catch the blood and swabs.

Should we be operating in a hospital where there are many assistants, we may arrange our speculum and retractors after Martin's methods. The assistant, standing on the patient's right, holds with his right hand the Simon's speculum that pulls back the perineum, while his left arm reaches over the leg of the patient just below the knee, and holds the right lateral retractor. The assistant on the left side of the patient holds with his right hand the two bullet forceps that pull on the uterus, and also, if necessary, an irrigating pipe, while with his left hand he holds the left lateral retractor. If we have only one assistant, we should apply our crutch by passing each of the end straps round the patient's leg just below the knee, and then carry the long strap round behind the neck and *under one of the axillæ*, to buckle on to the short strap affixed to the rod of wood. The assistant should then steady the patient with his left hand, and hold the Simon's speculum that pulls back the perineum with his right hand. If we have not a crutch, we may pass a bandage round below the knees, then behind the neck, and tie to the opposite leg, as mentioned above. Our instruments should be arranged on a table or chair on our right side, and our caustic, swabs, and dry plug should be near at hand.



### Dilatation of the Cervix.

Before commencing the actual description of the operation of curettage, it is well, in order that we may not interrupt the description, to give some consideration to the question of dilatation of the cervix.

The cervix may be dilated by the following methods :

1. Rapidly by means of the dilators of Atthill or Hegar, the knob-shaped sounds of Schultze or Fritsch, or the screws of Reid (Arnold, p. 448).

2. By expanding instruments, such as Sims' (three blades) or Ellenger's (two blades).

3. Slow dilatation by means of graduated conical dilators acting by means of elastic pressure—Tait's method (Arnold, p. 448).

4. Slow dilatation by means of tents made of sponge, laminaria, tupelo, slippery elm, decalcified ivory.

5. Slow dilatation by means of gauze tampons—Vulliet's method.

6. Slow dilatation by means of the bags of Barnes and others.

It may perhaps seem strange to discuss the question of dilatation of the uterus previous to curettage, but it is as well to know that some of the highest authorities on gynecology are opposed to dilatation as a routine practice. We have seen Martin do fifty consecutive curettements without previous dilatation, and he mentioned to us that he had not used a dilator for eighteen months previous to that date. He says, speaking of rapid dilators such as Hegar's and Schultze's, 'that all of these instruments cannot possibly work any other way than by tearing the cervix, and whenever the tissues of the cervix must be divided, I prefer the smooth cut surface to the torn surface.'

We have frequently heard Tait make a similar remark, and that is the reason why he adopts the slow dilatation. Schultze told us that, although the inventor of a rapidly-expanding dilator, he did not think that it was possible to rapidly dilate a uterus. He said he thought in the minor degrees that it was merely a compression of the mucous membrane, and after this a splitting of the cervix. Fritsch likewise condemns rapid dilatation. Pozzi, a pupil of Martin, agrees with Martin, and says: 'Except in cases of pronounced flexion or stenosis, the previous dilatation may be omitted in women who have had children; it is not needed for the introduction of the instrument; it is illusive as regards the escape of secretions, for artificial dilatation lasts but a few hours.'

On the other hand, we have experienced operators, like Bantock, saying he did not see how it was possible to curette the uterus without previous dilatation, whilst Macnaughton-Jones, at a meeting of the Gynæcological Society, said it was an axiom that dilatation should precede curetting.

For our own part, after having curetted some hundreds of cases, we think the truth lies between these extremes, and we are guided in our present practice by some such rules as the following:

1. If the case has a well-marked history of dysmenorrhœa, and this is a symptom of uterine disease, we always dilate. Such a case frequently has an ill-developed uterus with cervical catarrh and erosion.

2. If hæmorrhage is a prominent symptom, especially if due to endometritis following an abortion, dilatation is usually not necessary.

3. In any cases where the curette will not pass easily through the internal os, it is better to dilate, for if we push the curette through with any force we are really tearing the



tissues with a sharp instrument, whereas the dilator may only slightly split the os in one place.

4. Where the external os is narrow, cut it with a bistoury or with scissors.

If we determine to dilate, the next question to be decided is, Which method shall we adopt? While some of the authorities quoted above are quite opposed to rapid dilatation, they see no objection to the slow and gradual process. Then Tait's method is to slowly force through the cervix a series of conical dilators by means of continuous elastic pressure. This takes about twenty-four hours to accomplish. The process is slow and painful, and the elastic bands difficult to adjust.

Other operators are in favour of tents. At the meeting of the British Medical Association in 1888, the general opinion was in favour of rapid dilatation as opposed to dilatation by tents. Opinion has, however, changed, if we may judge from a recent discussion at the Gynæcological Society, London, on Fancourt Barnes's paper on curetting. Most of the speakers were in favour of tent dilatation, and Barnes in his reply said he was gratified to find that one of the essential points (in connection with curetting) was, on the whole, endorsed by the Fellows, viz., the value of the laminaria tent in dilatation.

The sponge tent is still used by a few. It is extremely dangerous, because it cannot be made aseptic, and by its expansion the septic matter is forced into the uterine surface, which is really a lymphatic surface that absorbs quickly. If, however, we determine to use these tents, they should be immersed in a concentrated solution of carbolic acid, and then rapidly scrubbed in corrosive sublimate solution (1-500).

The tupelo tent does not expand so much as the sponge tent, nor can it be soaked in antiseptic fluids, for when

once it has expanded it will not return to its original size.

The tangle tent (*laminaria*) is certainly the best of all tents, looked at from the aseptic point of view, although it does not expand so rapidly nor so much as the others mentioned above. It can, however, be soaked in antiseptic fluid and then dried; it will then return to its former size, though it loses somewhat its rounded shape. If we wish to alter its shape, it must be placed in warm fluid, then bent, and afterwards thrown into cold fluid. To introduce such a tent, proceed as follows: Introduce the speculum, seize the cervix with volsellæ, push the tent held by forceps into the cervix, and up just past the internal os, leaving a portion protruding through the external os; put in a dry vaginal plug, and leave for some hours, then remove the plug and give a douche, and again introduce a dry plug. Do not leave the tent in for more than twelve hours, but if necessary introduce a second one. The patient during the whole time that the tent is in should remain in bed. Tubal disease, as a rule, contra-indicates the use of tents. Lefour says that by soaking *laminaria* tents in the following solution for eight days the process of dilatation becomes painless: ether, ʒiiss.; iodoform, ʒiiss.; cocain pur. ʒi¼.

The slippery elm tent acts in a similar manner to the above tents, and is much praised by American operators.

The rapid method of dilatation by means of Hegar's dilators in conjunction with a rapidly-expanding instrument, such as Sims' three-bladed dilator, is the method which is probably most frequently used by the majority of operators. The method is familiar to everyone. The speculum having been introduced, the cervix is seized on either side by volsellæ; the sound tells us the length and calibre of the canal and we then introduce dilator after dilator. After having reached, say, No. 8, we generally find it difficult to intro-

duce the higher numbers unless we use a Sims' instrument alternately with the Hegar's. No. 12 gives us ample room to curette, but should we wish to explore with the finger we must go on to 15 or 16.

We may encounter difficulties at the external os. If we cannot pass through it, we should cut it on both sides with a scalpel or scissors. The dilator may not pass through the internal os. This may be due to one of two causes. Firstly, there may be true stenosis; secondly, if the uterus is an infantile one, we may have cervical catarrh, and with this the cervical canal frequently becomes dilated. On introducing the dilator, we push the point into the sides of the dilated canal, and thus fail to strike the internal os, which may not be at all stenosed. In dilating with Hegar's sounds, if too much force is applied we may tear the cervix with the volsellæ, or we may perforate the uterus. After abortion, Tarnier dilates the cervical canal by means of a bag working something on the principle of the Barnes' bag.

Vulliet's method is much used in America. It consists in packing the uterus every twenty-four hours with iodoform gauze. It is useful in exploration, painless, and devoid of risk, but takes much time.

### **The Operation of Curettage.**

We shall in the first place give a description of a curettage in an ordinary case of chronic endometritis.

The patient, having been anæsthetized, is placed at the end of the table. The crutch is placed on the legs, the hair about the labia removed, the external parts, together with the vagina, are well soaped and washed with antiseptic fluid.

A bimanual examination is then made, to be sure that tubal disease, pregnancy, and other conditions contra-

indicating the operation, are not present. This preliminary examination should never be neglected, and it will save us from such a disaster as has been mentioned above, where a case of ruptured ectopic pregnancy was curetted, and death speedily followed.

Simon's speculum is now introduced, and the posterior wall is held back by the assistant or operator pulling on it. The vagina is again douched, and the side-retractors introduced, if we are accustomed to use them. The cervix is now seized by a volsella, and is gradually pulled down, and then seized by the second volsella. We always hold the cervix by the lateral aspect of the anterior lip, not by the posterior lip. The volsellæ being held in the left hand (or by an assistant), the operator introduces the sound, and the position of the fundus is made certain. If we wish to dilate, we proceed as described above. The curette is now introduced and pushed towards the fundus. We should now proceed to scrape the walls after some fixed plan, such as first scraping the anterior wall, then the posterior and lateral ones, and lastly the fundus and angles. After scraping the walls it is well to withdraw the curette, carrying in its hollow the tissue removed, and throw it for inspection on to the palm of the left hand, or into a basin of fluid for further examination after the operation. When we have removed the mucous coat, and have come down on to the parenchyma, this latter will give rise to a characteristic creak, *le cri utérine*, and when we hear this we may cease curetting the body, and turn our attention to the cervical canal and any eroded patches. We should next cleanse the uterus by means of an irrigator, by cotton wool on a probe, or by using Doléris' écouvillon, which is shaped like a small bottle-brush. This is a very important step, and should never be neglected, for by it we remove clots and shreds of tissue, and if we use an irrigator we



may in addition introduce by its means an antiseptic and hæmostatic in the shape of hot carbolic lotion (1-100). The next step is to apply a caustic. This is done by means of wool rolled on a probe, or, as Martin always does, by injecting forty minims of liq. ferri persulphatis. This he does by means of a Braun's intra-uterine syringe, the nozzle of which is pushed up to the fundus, and as the fluid is very slowly expressed the nozzle is withdrawn. Tait always applies Paquelin's cautery to the uterine cavity. The uterus can again be irrigated after the caustic is applied, as Pozzi advocates, in order that we may remove the excess of caustic and any clots.

If we apply the caustic by means of cotton-wool on a probe, we shall frequently find that, unless the cervical canal is well dilated, much of the caustic is squeezed out in endeavouring to force the probe into the uterus, and after its introduction we may find that the wool has come off the probe in withdrawing it. When we find the wool slipping off the probe, the best thing to do is to insert a pair of dressing forceps and grasp the wool on either side of the probe, and so withdraw probe and wool together. In using iodine and carbolic acid, the vagina may be very severely cauterized if the excess of fluid escapes from the uterus and flows into the vagina. It is a wise precaution to place a piece of lint between the posterior lip of the cervix and the Simon's speculum; this receives the overflow. The uterine cavity may now be plugged with iodoform gauze, or we may neglect this step, and merely place a dry tampon of cotton wool in the vagina, with a cord attached so that we may easily withdraw it.

### **Curettage after Recent Abortion.**

After a recent miscarriage, we are frequently called upon to remove the whole or portion of the secundines. The



patient may object to an anæsthetic, and so we are forced to perform the operation while the patient is lying in bed in Sims' position.

The blade of the speculum should be long and narrow, and it facilitates matters if we take the blade off the handle, and introduce it, and then fix the handle on afterwards. It is necessary to have one assistant, who stands nearer to the head of the patient than the operator, and who holds the speculum with the right hand and pulls the right buttock up with the left hand. If it be night-time, a short candle placed on a chair near the patient's feet will show a sufficient light, and is much better than a lamp to work with.

Having introduced the speculum, some little difficulty may be experienced in seizing the cervix. If the anterior wall of the vagina is caught by the volsella close to the cervix and pulled on, the cervix will come into view, and it may then be seized by the second volsella. Care must be taken not to use too much force in these cases, as the tissues are generally very soft and tear very easily. The uterus may be prevented from being pulled down by the blade of the speculum being too long.

Having measured the length of the uterus, the finger may be introduced, and the curetting be performed by the nail; or we may proceed in the following manner: Introduce a pair of 'sponge forceps,' and seize the secundines and pull gently on them; if there is much resistance, it is well to rotate the forceps, or to introduce a second pair. The whole mass may then come away, but very frequently the membranes break. We have found the following manœuvre very useful: Bring the head of the forceps to the internal os, and then run it up towards the fundus, at the same time opening the blades; then seize gently any membranes that you may encounter, and withdraw the

forceps closed to the internal os; repeat this piston-like motion several times, and then withdraw the forceps and introduce a large spoon curette and scoop the detached pieces of membrane out of the uterus. Again introduce the forceps and repeat the manœuvre several times, then irrigate the uterus, and further cleanse the walls by swabbing with dry wool on probes. If we rely entirely on the curette in these cases, we shall frequently leave behind great masses of placenta. This happened to us in our first cases, but not since we have adopted the forceps manœuvre above related. Tarnier gives the following graphic description, which admirably illustrates this point. The patient was supposed to have had an abortion: 'On pratique donc consciencieusement le curettage et on vide l'utérus, qu'on lave et qu'on cauterise ensuite avec du perchlorure de fer, or, le lendemain à la grande surprise de l'opérateur, la femme expulse spontanément un fœtus, long de 6 à 7 centimètres, dont la curette avait séparé les jambes, mais qui était demeuré dans l'utérus malgré le curettage.'

Tarnier further remarks with regard to the curette after abortions: 'A mon avis, le doigt et les pinces devront lui être presque toujours préférés.'

The uterus may be packed with iodoform gauze when curetting after a miscarriage with great advantage.

### Curettage after Labour at Term.

The patient may be curetted in bed in Sims' position. After the uterus has been pulled down and the speculum introduced, the uterus should be well irrigated, iodine-water being excellent for these cases. The uterine cavity should always be measured with the sound, and if the os is well dilated, as it usually is, the finger may be introduced, and we may be able to ascertain, by means of the intro-

duced finger and pressure on the fundus by the other hand, much that may be of use to us. The curette should always be a blunt one, and it should never be forgotten that we may not get *le cri utérine* in these cases. Where we have a putrid placenta, we often get softened uterine walls, and if we curette too vigorously perforation will result. To guard against this, we should endeavour to place the hand that is pressing externally on that part of the uterus that we are curetting, and so endeavour to gauge the thickness of the uterine wall. In this connection remember that the uterine wall is thinner at the lower uterine segment than towards the fundus.

The curette should be frequently withdrawn during the operation, and the irrigator used, and we may with advantage use the irrigating curette.

After the operation, cleanse the walls well with dry wool on a probe, and, if thought necessary, apply some caustic, and then pack with iodoform gauze, or place an iodoform bougie in the uterine cavity.

### The After-Treatment.

A pad of wool having been placed over the vulva, a T-bandage is applied, and the patient is placed in bed. If there has been much hæmorrhage, hot-water bottles and rectal injections may be necessary; hypodermic injections of strychnine and rectal injections of Carnrick's liquid peptonoids with brandy are excellent for profound collapse.

We do not advise the subcutaneous injection of ergotin when the patient has lost much blood; we have seen patients collapse twice after such treatment. The plug may be withdrawn from the vagina after twenty-four hours, and a vaginal douche of Condé's fluid administered twice a day. We have seen cases where the repeated injection of Condé's fluid after curettage has caused hæmorrhage for some days;

when a weak alum injection was administered, the hæmorrhage ceased.

According to the nature of the case, the patient should remain in bed for a week or more, never less. If the uterus is subinvolved, the administration of chlorate of potassium and ergot, as Mr. Tait has pointed out, will do good. It is frequently necessary in cervical catarrh with erosion to swab the parts with carbolic and glycerine several times after the curettage.

The patient should be warned against marital relations for at least a month, and she should be advised to rest for the first three periods after the operation.

A few words with regard to the after-treatment of the surgeon's instruments may be useful.

The instruments, having been thoroughly washed, may then be placed in hot water and well scrubbed with soft-soap. We are then in the habit of soaking them in a solution of microcidine. This we find to be the most valuable of all disinfectants as far as instruments are concerned; it brightens them in a short space of time, and steel instruments may be left in it for days without rusting. Its germicidal power is little inferior to corrosive sublimate, and it is not poisonous. After taking the instruments out of this solution, we may cleanse them with 'monkey' soap.

If the operator's hands smell unpleasantly after curetting a putrid case, nothing will rid them of the offensive odour sooner than soaking them in hot water into which a few ounces of sp. ammon. arom. have been poured. This solution will also free the hands of the smell of iodoform.











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